

NASA Climate Spiral

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ABSTRACT

NASA's climate spiral is a visualization illustrating the monthly global temperatures from 1880-2021. The visualization is designed to capture the attention of the social media audience. The visualization starts as a seemingly 2D radial chart and then transitions to a 3D tornado plot.

Keywords: Climate Change, visualization

Index Terms:

1 VISUALIZATION DETAILS

The NASA climate spiral was based on an earlier visualization climate scientist Ed Hawkins in 2016. Climate spiral visualizations have been widely emulated and distributed. The visualization version was displayed as part of the opening ceremony of the Rio de Janeiro Olympics.

The new version of the visualization features a different reconstruction of global temperatures (The GISS Surface Temperature Analysis (GISTEMP) [2]). The visualization uses several techniques to capture the viewer's attention. The radial spiral builds energy and suspense. The rapid increase of temperatures in recent decades is accentuated by letting the spiral overflow the plot and run over top of the labels. Finally, the transition from a 2D radial plot to a 3D spiral (figure 1) surprises the viewer and helps them put what they've just seen in context.

2 IMPACT

NASA's climate spiral has been very successful on social media. There have been multiple posts with more than a million views across multiple social media platforms (Twitter, Facebook, Reddit, LinkedIn). The visualization was featured in the Washington Post's data visualization newsletter "How to Read This Chart". The visualization was awarded a Silver Prize in the 2022 Deauville Green Awards (SPOT Competition).

The numerous social media comments provide a rich set of data to understand the impact of the visualization. To date we have only performed a cursory analysis. The comments tend to fall in four major categories. The first are comments about the visualization itself (frequently advising people to watch until the end). The second and third categories are climate doomerism and climate denialism. Encouragingly a significant number of comments four category involving some sort of a call to action on climate change. Examples of this fourth category of comments are shown in Figure 2.

The visualization's webpage links to the dataset used to create the visualization. This has led to people creating their own versions of the spiral using various pieces of software. These include an augmented reality version of the spiral and a series of video tutorials on how to recreate the spiral yourself.



Figure 1: Side view showing the 3D 'tornado' perspective of the spiral

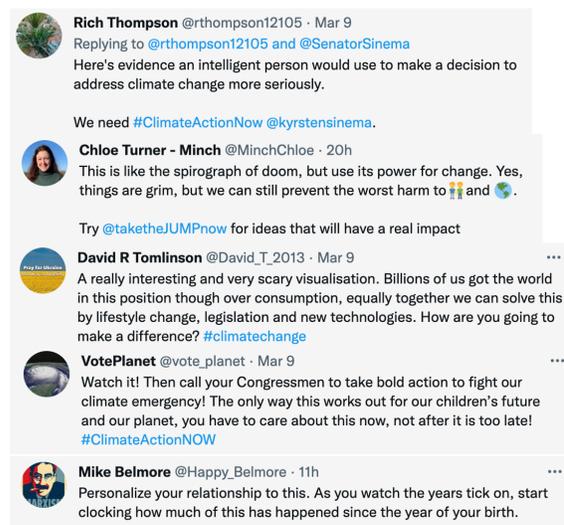


Figure 2: Examples of social media comments encouraging action on climate change.

REFERENCES

- [1] [Ed Hawkins¹](#), [Taran Fæhn²](#), and [Jan Fuglestedt³](#). The Climate Spiral Demonstrates the Power of Sharing Creative Ideas, BAMS, 01 May 2019, DOI: <https://doi.org/10.1175/BAMS-D-18-0228.1>
- [2] Hansen, J., R. Ruedy, M. Sato, and K. Lo, 2010: Global surface temperature change. *Rev. Geophys.*, **48**, RG4004, doi:10.1029/2010RG000345.